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ABSTRACT

In this study designed to generate hypotheses concerning adult learning, cognitive processes, and the reeducation of disadvantaged adults, the phenomena of concept attainment, symbol manipulation, verbal behavior, differential instruction, and awareness levels were investigated. Attention focus (cognitive style) in the concept attainment process was not satisfactorily measured. The symbol manipulation process of literate and illiterate adults varied sufficiently to suggest further testing. The verbal behavior of lower class rural adult women was distinctly limited when compared with middle class rural women in the same community. This suggested that differentiated instructional programs should be examined. A design for manipulating the instructional variables was developed for possible use in dealing with variance in the "awareness stage" of learning. The present report summarizes conditions which suggested investigation, the objects for preliminary explorations, and resultant findings. (Twelve references, two tables, and a diagram are included.) (Author/LY)

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BASIC EXPLORATIONS IN ADULT RE-EDUCATION

A TERMINAL REPORT FROM THE ADULT RE-EDUCATION PROJECT

1969

WISCONSIN RESEARCH AND DEVELOPMENT

CENTER FOR COGNITIVE LEARNING

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BASIC EXPLORATIONS IN ADULT RE-EDUCATION

By Burton W. Kreitlow

A Terminal Report from the Adult Re-education Project
Burton W. Kreitlow, Principal Investigator

Wisconsin Research and Development
Center for Cognitive Learning
The University of Wisconsin
Madison, Wisconsin

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STATEMENT OF FOCUS

The Wisconsin Research and Development Center for Cognitive Learning focuses on contributing to a better understanding of cognitive learning by children and youth and to the improvement of related educational practices. The strategy for research and development is comprehensive. It includes basic research to generate new knowledge about the conditions and processes of learning and about the processes of instruction, and the subsequent development of research-based instructional materials, many of which are designed for use by teachers and others for use by students. These materials are tested and refined in school settings. Throughout these operations behavioral scientists, curriculum experts, academic scholars, and school people interact, insuring that the results of Center activities are based soundly on knowledge of subject matter and cognitive learning and that they are applied to the improvement of educational practice.

This Theoretical Paper is from the Models for Effecting Planned Educational Change Project in Program 3. General objectives of the Program are to develop and test organizations that facilitate research and development activities in the schools and to develop and test the effectiveness of the means whereby schools select, introduce, and utilize the results of research and development. Constributing to these Program objectives, the main objective of the Planned Change Project is to develop and test system-wide mechanisms which local school systems can employ in utilizing knowledge and innovations of the type generated by the Center. Change-agent teams have been organized in area school systems and their effectiveness is being evaluated.

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ABSTRACT

In 1964 a number of explorations for research in adult re-education were begun simultaneously within the Research and Development Center. The purpose of these explorations was to identify and select promising areas upon which to focus attention for detailed investigation. Before the end of the exploratory period the overall objectives and scope of the Research and Development Center had changed to such an extent that further study related to the adult subject was not appropriate.

This report summarizes the conditions which suggested investigation, the objects for preliminary explorations, and the resultant findings.

In a study designed to generate hypotheses, more attention is given to the discovery of promising leads than to the derivation of conclusive evidence. The phenomena of concept attainment, symbol manipulation, verbal behavior, differential instruction, and awareness levels were studied. Attentional involvement in the concept attainment process was not satisfactorily measured. The symbol manipulation process of literate and illiterate adults varied sufficiently to suggest further testing. The verbal behavior of lower-class rural adult women was distinctly limited when compared with middle-class rural women in the same community. This suggested investigation of differentiated programs of instruction. A design for manipulating the instructional variables was developed for possible use in dealing with variability in the "awareness stage" of learning.

This project was phased out of the Research and Development Center for Cognitive Learning. It is proposed that other agencies take up those suggestions for further research and development which are allied with their goals.

I
BACKGROUND OF THE EXPLORATIONS

Initial exploration of the problem related to the re-education of adults began with the assumption that an in-depth follow-up would be made of promising hypotheses derived from the explorations. The phenomena of concept attainment, symbol manipulation, verbal behavior, differential instruction, and awareness levels formed the focus of explorations which were begun simultaneously and were to be completed in 3 years or less. At the end of that time decisions were to be made as to which of the explorations promised the greatest theoretical or practical outcomes. Before the end of the exploratory period it had become clear that the overall objectives and the scope of the Research and Development Center were moving to a sharper focus on cognitive learning than was initially perceived and that focus was to be on the elementary and secondary school child. Consequently, the adult-oriented concerns were eliminated from the Center's research priorities.

During the exploratory period a series of working papers and reports was produced and are included in the following and in the Appendix:

1. The Direction of Research on Re-education
2. Proposed Activities of the Re-Education Team
3. Selectiveness of Attention and Achievement Motivation as Determinants of Successful Adaptation
4. Research on Re-Education
5. A Report of Preliminary Explorations of Adult Instruction
6. A Comparison of Symbol-Manipulation Abilities of Illiterate and Literate Adult Populations
7. Awareness in the Cognitive Processes of Adults
8. Becoming Aware
9. Adult Re-Education Progress Report

The theses and seminar reports completed by graduate students working on or in cooperation with the above explorations included:

1. Ludmilla Marin, "The Applicability of Instruction on Work-Emotionality Concepts to Group Productivity in Educationally Oriented Discussion Groups" 198 Pp. 1965.

2. Charlotte Martin, "A Comparison of Vocabulary Differences Between Two Socio-Economic Groups of Homemakers." 1966.

With the completion of these reports, a decision was made to phase out the work of the Center on problems dealing with the re-education of adults. Final activities included updating an earlier document written by the Project Director and published as Theoretical Paper No. 13, "Educating the Adult Educator: Part II. Taxonomy of Needed Research," and the preparation of a Working Paper by Dr. R. D. Boyd on explorations in symbol manipulation.

Background factors that led to the explorations are summarized in Table 1 under heading Condition. For details, the reader is referred to the working papers and reports listed in Appendix.

METHODS

Exploratory investigations designed to help the research team determine areas for extended study utilized a variety of research methods and procedures. This was the case as the objectives of this project were examined and first steps taken to determine whether or not the objectives were realistic and within the scope of the Center's mission.

The methods used are summarized in this section and are in the same sequence as the objectives found in Table 1.

TABLE 1

The Conditions and the Objectives of the Basic Explorations in Adult Re-education

Condition	Objective
Adults often fail to recognize the material or the means by which they can improve themselves. Their environment does not come to their attention. They are not "aware" of it.	To determine how a concept is brought to the attention of an adult. How does the adult "become aware"?
	To determine how an adult learns in the first stages of concept attainment.
A large number of illiterate adults are in the lowest socioeconomic strata of society and they are difficult to reach using the traditional classroom method.	To determine if there are differences the symbol manipulation abilities of literate and illiterate adults in the same socioeconomic strata.
	To determine the language-use patterns of low- and middle-economic level rural women and the differential receptivity to the motivations provided by home economists.
Adult learning generally invplves "cognitive restructuring or reorganization."	To identify pre-instructional variables that influence the adult's reorganization behavior.
Adult learning problems are in a different setting than are those of youth.	To develop viable instructional and learning models for adult instruction.
Adults show consistent differences in their capacity to direct attention selectively when confronted with complex stimulus fields (cognitive style).	To determine how certain perceptual, cognitive, and motivational modes of response operate in the adult organism to govern selectiveness of attention.
	To determine how these factors influence learning under various instructional situations.
	To determine if an adult's awareness of his modes of behavior facilitates efficiency of learning.
The adult's way of life is affected by automation and technical change and by social, cultural, and educational deprivation which in combination place certain adults in a retarded position.	To improve the efficiency of learning in concept attainment and problem-solving ability for adults who are out of the mainstream of society.
Adults in a formal classroom situation have different goals, expectations, and motivations than the regular public school student.	To develop hypotheses and/or questions which, if pursued, will help explain the differences in classroom responses between adult and youth and ultimately to aid in instructional effectiveness.

The limited research dealing with the initial stages of concept attainment required review in order to determine those aspects which were most relevant to the adult. This review was followed by a pilot study of working class adults solicited through the Wisconsin Employment Service. The subjects were interviewed and the Wechsler Adult Intelligence Scale (WAIS) and Ammond's Quick Test (QT) test administered. Following this, subjects were pre-tested on their knowledge related to the concept of static equilibrium.* The pre-test was followed by a thirty-minute tape-recorded lesson designed to enhance the subject's knowledge of the selected concept. This was followed by a written response to the instruction and later by an oral response which included the subject's own interpretation of why he responded as he did.

Matched groups were identified in order to test symbol manipulation abilities of literate and illiterate adults. The subjects selected in a rural Tennessee county were matched on age, sex, occupation, geographic location, race, size of school attended, and economic level. The three tests administered covered space relations, attention span, and culture-free intelligence.

The literature suggests that psychological, sociological, and physiological variables require consideration as appropriate inputs for any learning model relating to adult instruction. To move comprehensively toward the development of such a model requires intensive review of the literature on adult instruction as well as careful study of the relationships between adult instruction and models devised for childhood instruction. Promising leads in this regard may then be applied to selected groups of adults in the field.

A descriptive and comparative analysis was used to analyze the language behavior patterns of homemakers in lower- and middle-socioeconomic classes. Verbal behaviors were analyzed in relation to degree of verbosity, the kinds of ideas expressed, and the clarity with which the ideas were expressed. Data gathered by field interviews with subjects selected by random sampling from lists of homemaking club members were matched with women from lower income families whose other characteristics (age, number of children, husband at home, etc.) were similar.

In order to identify and isolate pre-instructional variables whereby reorganization of adult behavior might be viewed, it was necessary to build a classification schema based on previous research. The limitations of previous research dealing with adults led to hypotheses and hunches as to the variables involved rather than to a well-founded structure. From the review of research and the estimates, an integrated design for later potential experimentation was developed. The intent was that the proposed experimentation would deal with both static and changeable pre-instructional variables.

Subjects were observed and tested to determine their capacity to differentiate complex stimulus fields. The subjects were tested for cognitive styles or general modes of cognitive and perceptual response that appear to guide an adult's capacity for selectiveness of attention. The Hidden Figures Test III, a revised form of Wilkens (1950) Embedded-Figures Test (EFT) was redesigned for group administration.

A review of literature on the subject of the efficiency of adults in attaining concepts and solving problems was undertaken. Outcomes of this review were analyzed in terms of the influences of automation on the adults who were living in a situation of relative disadvantage. This analysis formed the base upon which to build a paradigm on re-education for those in such a position.

A final exploration involved the teaching and observation of five classes of adults in a formal learning situation where language skill was the focus of the course. From this experience, hypotheses for further study of response differentials between youth and adults were developed.

*Instructional materials on static equilibrium were used in collaboration with the Science Education Project of the R & D Center.

II
FINDINGS

A review of the literature on the process of "becoming aware" indicated that the initial stages of this process had not previously been studied in a setting with adult subjects. These initial stages correspond to the concept of "educational readiness" in the context of children's education. In relation to children this concept has been examined along with such pre-instructional variables as skill level and aptitudes.

The attempt to assess the early stages of attentional involvement in the concept attainment process of the adult subject was not satisfactory. This may have been due to the complexity of the concept task, the research procedure used, or the nature of the adult learner with the large repertoire of experiences he brings to each "new" learning situation. Discriminating new learning from past experience was not achieved in this exploration. A major problem was encountered in attempts to construct adequate measurement instruments.

No differences of significant magnitude were found between literates and illiterates on attention span as measured by a test of coordination. The differences showed a slightly greater attention by literates and suggest that further study of this phenomenon be undertaken. Administration of a culture-free intelligence test showed some differences in favor of the literate sample; but the I. Q. level for both groups was so low that no generalizations can be made. We did determine that literates got more items correct and attempted to answer more of the items on the test.

As a result of fixed interviews with rural women of the lower and middle socioeconomic class, it was found that subjects of the middle class were more verbal, had a wider vocabulary range, expressed more ideas, had a wider range of ideas, and their ideas were more clearly and completely expressed. The lower-class women were more oriented to their immediate environment and showed little concern for community or world affairs.

A search for ways to view adult behavior which would be suitable in potential experimentation led to the design shown in Table 2. This design is organized for experimentation with adults in settings where the instructional techniques are varied. The initial intent was to develop a design for use in studying the early stages of "becoming aware" of a concept new to the adult. Such a design could conceivably be suitable for use with other instructional problems.

The research did not proceed to a point where instructional and learning models could be devised which would differentiate youths from adults. If some of the suggested projections coming from the explorations were carried out it would be possible to judge whether or not differentiating models were reasonable expectations. It is only on that premise that sophisticated testing would be appropriate.

In describing an adult's capacity to differentiate complex stimulus fields, a number of tests were examined as being potentially useful. Among those examined, the French Insight Test, containing verbal cues as a stimulus, appeared to be the most appropriate for use with a varied adult population. Some variations of the French test may need to be developed as its previous use has been only with male subjects.

A survey of the literature concerning the responses of culturally disadvantaged adults to automation identified a number of problem areas around which specific projects could be developed. These included problems related to basic skills, to resistance to learning, to motivation, to verbalization, and to the aging-human ability correlations. Figure 1 places in perspective the relationships among re-education, automation, and cultural disadvantage to efficiency of learning by adults.

Response of adults in a language class was used as a basis for identifying hypotheses or questions about adults which, if resolved, would make possible more valid predictions of their behavioral outcomes in a formal

TABLE 2

A Design for Manipulating Instructional Variables

I Stratifying Variables	II Pre-Instructional Behavioral Variables	III Instructional Variables (Manipulable)
Groups of adults to be tested from different levels of background, for example:	Tests developed and given to X_1 - X_n to identify	Instructional techniques will be varied in at least two ways:
X_1 — Education	Y_1 — Aptitudes	A. Congruent with II.
X_2 — Work Experiences	Y_2 — Skills	B. Attempting to change II.
X_3 — Life Style	Y_3 — Abilities	
X_4 — Culture	Y_4 — Learning sets	
X_5 — Age Level	Y_n — etc.	
X_n — etc.		

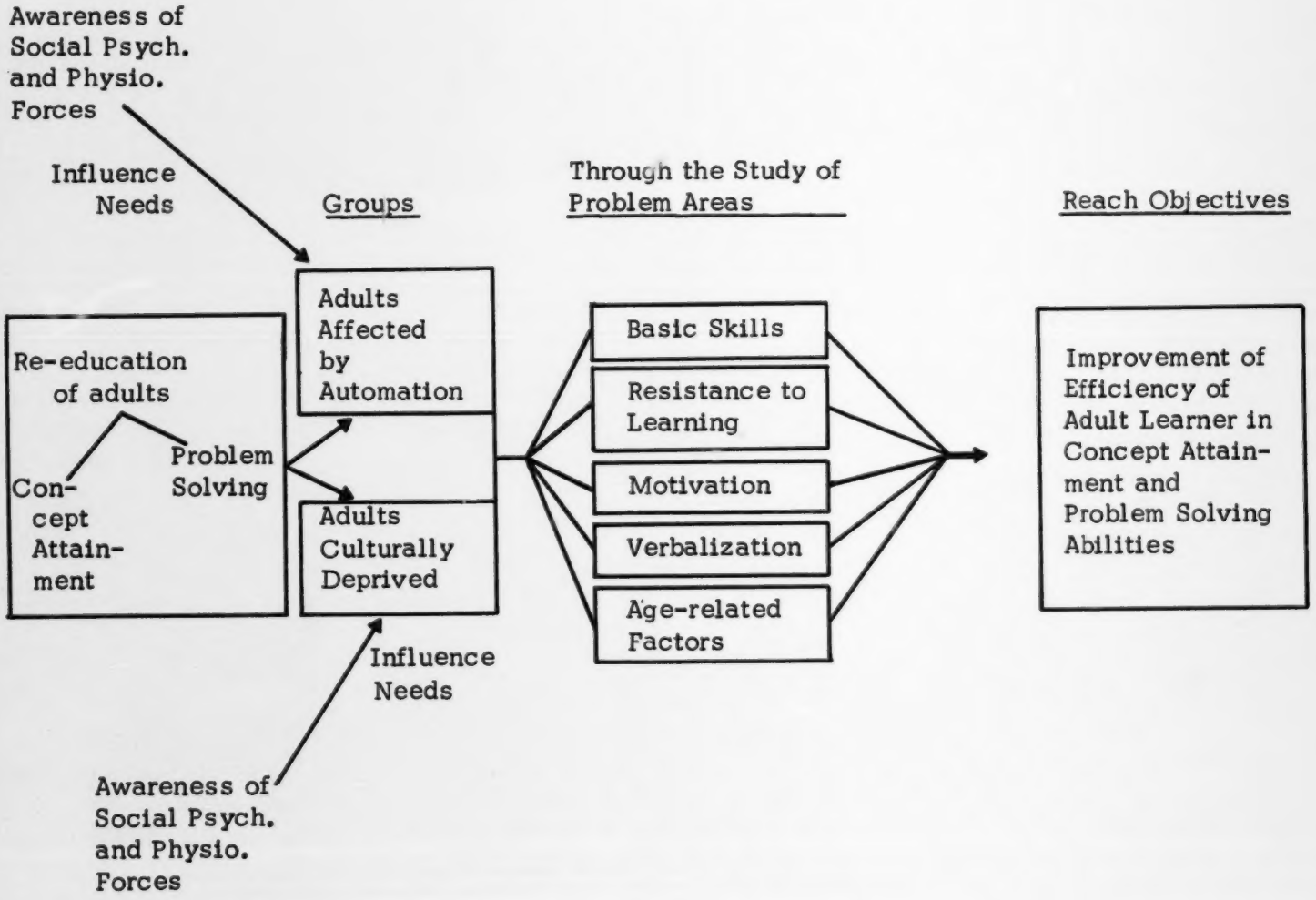

Fig. 1. Paradigm on Re-education of Adults Affected by Automation or Who are Culturally Disadvantaged.

instructional setting. Among the questions coming from this experience, the following were considered relevant for further study.

1. How important are cultural differences in an adult's learning of language and what factors are relevant in dealing with these differences ?

2. What is the relative importance of the method used in teaching language skills, the teacher style, and student attitude toward language study ?

3. To what degree is past failure in study of language related to success in teaching adults remedial language skills ?

4. Does a heterogeneous group (mixed U.S. and foreign students) provide a more favorable learning climate than a homogeneous group ?

5. To what extent must cognitive and affective learning be congruent (or in equilibrium) to produce the most efficient language learning ?

III
CONCLUSIONS AND RECOMMENDATIONS

The explorations made over a broad front in this investigation led to several major conclusions. Among them are the following:

1. The level of knowledge about how adults "become aware" of new concepts is limited. A research postulate to discriminate new from reorganized learning by an adult has not been achieved.

2. The initial exploration of the role symbols play in blocking learning did not rule out their blocking potentials. Thus, further exploration of this phenomenon is appropriate.

3. Differences in verbal behavior between low- and middle-class rural women is a barrier to recruiting and programming as traditionally done by adult education agencies.

4. Automation and cultural disadvantages are precursors to a number of problems faced by adults and in turn raise problems for those who attempt the organization of learning opportunities for adults.

5. Steps should be taken to follow in depth the problem areas identified by Conclusions 1-4.

It is recommended that consideration be given by appropriate agencies and institutions (including the USOE) to the major problems in the field of adult re-education, adult instruction, and adult learning. Action research, field studies and basic investigations of how adults learn, how adults become aware of concepts, and how status variables relate to instructional techniques should be expanded. No breakthrough in knowledge of re-education will be forthcoming without a major commitment to research. It will not be accomplished as a minority adjunct to an existing R and D Center.

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APPENDIX

Papers and Reports Developed by the Study Team

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